

Amendment to the Claims

1 Claim 1 (Currently Amended): A fault tolerant liquid crystal display comprising:
2 a polarizer for coupling to a beam of incident light to polarize the beam of light with
3 respect to a polarization angle;
4 a plurality of liquid crystal display regions operably coupled to the polarizer, wherein a
5 plurality of pixels are arrayed on each of the display regions and the display regions are
6 superimposed upon each other to create a one-to-one correspondence between pixels on the
7 superimposed display regions;
8 ~~a plurality of pixels arrayed on each of the liquid crystal display regions, each pixel~~
9 ~~having a collinear one-to-one correspondence with a pixel on an adjacent liquid crystal display~~
10 ~~region;~~
11 an analyzer coupled to the plurality of liquid crystal display regions and the polarizer to
12 pass a gray-scale portion of the beam of polarized light transmitted as a function of the
13 polarization angle; and
14 a means to control gray-scale on ~~at least one of the pixels on at least one~~ the plurality of
15 the liquid crystal display regions.

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1 Claim 4 (Previously amended): The liquid crystal display of claim 1 wherein the gray-scale
2 control means includes an electronically programmable driver and interface circuitry
3 formed on at least one of the liquid crystal display regions.

1 Claim 12 (Currently amended): The liquid crystal display of claim 1 wherein the means to
2 control gray-scale controls the intensity of the transmitted light through at least two
3 collinear pixels on at least two liquid crystal display regions.

1 Claim 13 (Currently amended): A fault tolerant liquid crystal display comprising:
2 a primary liquid crystal display region and at least one secondary liquid crystal display
3 region, wherein a plurality of pixels are arrayed on each of the display regions and the display
4 regions are superimposed upon each other to create a one-to-one correspondence between pixels
5 on the superimposed display regions;
6 a means of applying and fixing a first voltage to the pixels of the primary liquid crystal
7 display region; and
8 a means of applying ~~a~~ and fixing a second voltage to the pixels of the at least one
9 secondary liquid crystal display region to achieve a transmitted intensity.

1 Claim 14 (Currently amended): A method of forming a fault tolerant liquid crystal display
2 comprising the steps of:
3 providing a polarizer;
4 providing a plurality of collinearly arranged liquid crystal display regions, each of the
5 liquid crystal display regions including a plurality of pixels configured in a two-dimensional
6 array in the plane of the liquid crystal display regions;
7 orienting each liquid crystal display region so that each pixel in the array has a one-to-
8 one correspondence with a pixel on an adjacent liquid crystal display region;

9 providing an analyzer operably coupled to the liquid crystal display regions and the
10 polarizer; and
11 providing a means to control gray-scale on ~~at least one of the pixels on at least one the~~
12 plurality of the liquid crystal display regions.

1 Claim 15 (Previously added): An apparatus for calibrating a fault tolerant liquid crystal display
2 comprising:
3 a light source;
4 an intensity homogenizing and projection optics operably coupled to the light source for
5 transmitting a uniform beam of light to the liquid crystal display;
6 imaging optics for focusing the light passed by the liquid crystal display;
7 an optical detector for measuring the light focused by the imaging optics;
8 programming electronics operably coupled to the optical detector; and
9 a means for setting gray-scale values on individual pixels of the liquid crystal display.

1 Claim 16 (Previously added): A method for calibrating a fault tolerant liquid crystal display
2 comprising the steps of:
3 placing a fault tolerant liquid crystal display into an optical test-bed, wherein the liquid
4 crystal display includes a primary liquid crystal display region and least one secondary liquid
5 crystal display region, each liquid crystal display region containing an array of pixels;
6 uniformly illuminating each of the pixels on the liquid crystal display regions;
7 determining a desired light intensity through each of the pixels on the liquid crystal
8 display regions;

9 determining a desired uniformity level for the liquid crystal display;
10 applying a first voltage to the pixels of the primary liquid crystal display region and
11 applying a second voltage to the pixels of the secondary liquid crystal display region to achieve a
12 transmitted light intensity;
13 measuring the transmitted light intensity through each of the pixels on the liquid crystal
14 display regions;
15 comparing the transmitted light intensity with the desired light intensity;
16 adjusting the first voltage or the second voltage to achieve the desired light intensity and
17 the desired uniformity; and
18 fixing the adjusted first voltage and adjusted second voltage to maintain the desired light
19 intensity and the desired uniformity.

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1 Claim 17 (Previously added): A method for correcting faulty pixels in a fault tolerant liquid
2 crystal display comprising the steps of:
3 placing a fault tolerant liquid crystal display into an optical test bed, wherein the liquid
4 crystal display includes a primary liquid crystal display region and least one secondary liquid
5 crystal display region, each liquid crystal display region containing an array of pixels;
6 uniformly illuminating each of the pixels on the liquid crystal display regions;
7 determining a desired light intensity through each of the pixels on the liquid crystal
8 display regions;
9 applying a first voltage to the pixels of the primary liquid crystal display region and
10 applying a second voltage to the pixels of the secondary liquid crystal display region to achieve a
11 transmitted light intensity;

- 12 measuring the transmitted light intensity through each of the pixels on the liquid crystal
- 13 display regions;
- 14 comparing the transmitted light intensity with the desired light intensity;
- 15 adjusting the first voltage or the second voltage to achieve the desired light intensity; and
- 16 fixing the adjusted first voltage and adjusted second voltage to maintain the desired light
- 17 intensity.
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